

1. A trough member for heating molten aluminum as it flows from a molten aluminum source to a processing operation, the trough members comprised of:

a first side and a second side, said first and said second sides having outside surfaces, said sides formed from a ceramic material resistant to attack by molten aluminum, said first side and second side having heating element receptacles provided therein, said receptacles having protection tubes therein, said tubes comprised of a material selected from the group consisting of mullite, boron nitride, silicon carbide, silicon nitride, graphite, silicon aluminum oxynitride and titanium; and

electric heating elements positioned in said protection tubes in at least one side, said heating elements designed to heat molten aluminum as it flows along said trough member from said source.

2. The trough in accordance with claim 1 wherein-said powdered material is selected from the group consisting of silicon carbide, magnesium oxide, carbon and mixtures thereof.

3. The trough in accordance with claim 1 wherein said contact medium is an amalgam.

4. The trough in accordance with claim 1 wherein said receptacles contain a contact medium, the contact medium selected from the group consisting of powdered material, low melting metal and a glass material.

5. The trough in accordance with claim 1 wherein said ceramic material contains a copper medium for improved heat transfer.

6. The trough in accordance with claim 1 wherein said first side and said second side have a heat-reflective layer disposed on said outside surfaces.

7. A trough member for heating molten aluminum as it flows from a molten aluminum source to a processing operation, the trough members comprised of:

a first side and a second side, said first and said second sides having outside surfaces, said sides formed from a ceramic material resistant to attack by molten aluminum, said first side and second side having heating element receptacles provided therein, said receptacles having protection tubes therein, said tubes comprised of a material selected from the group consisting of mullite, boron nitride, silicon carbide, silicon nitride, graphite, silicon aluminum oxynitride and titanium, said first and second sides having a heat-reflective layer disposed on said outside surfaces; and

electric heating elements positioned in said protection tubes in at least one side, said heating elements designed to heat molten aluminum as it flows along said trough member from said source.